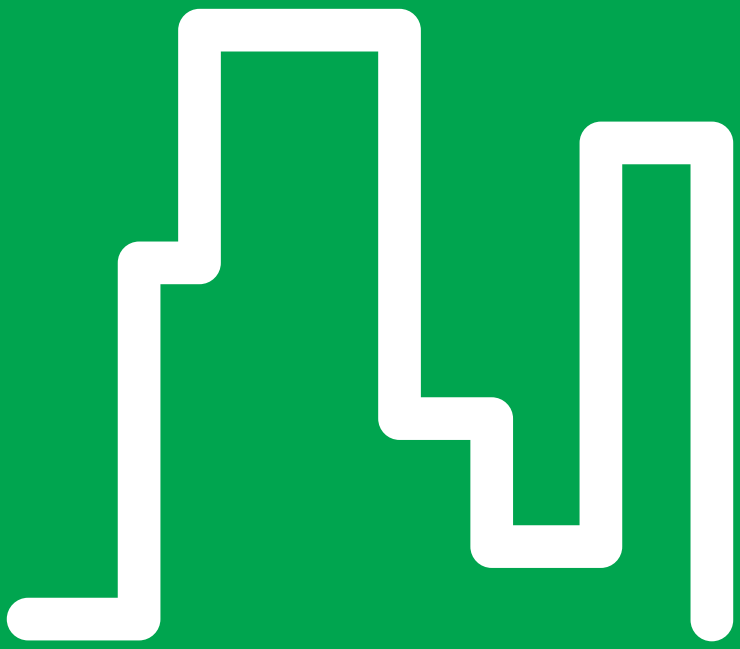
SeeTool - Solutions for KNX

Office building segment



Application 2.0.0.0.0.4

Movement dependent automatic light control with manual control

Schneider Electric

Lighting control functions

Application combines two modes: automatic and manual

At automatic mode the light is automatically switched OFF or ON dependant on people's movement and existing brightness. At manual mode the light can be switched permanently OFF or ON. The manual ON will start the automatic movement detection.

Application areas

The application is defined for single room offices and conference rooms where automatic control is important, but manual control required as well (e.g. during presentations). It is also usable in all types of non occupied storage rooms and occasionally used rooms as it offers basic control of the lighting with an automatic movement detector and a manual control by push-button.

Lighting

up to 40% energy saving

Energy savings

Lights will not remain on all night, or even when not needed. Energy savings are achieved by turning ON and OFF the lights automatically. This reduces the time for the lights turned on and can lead to savings of 40% compared to installations without automatic function.

Flexibility

For optimised cost, the amount of units is reduced to a minimum, but allows maximum of flexibility when walls are removed and rooms are combined.

Reliability

Design, planning and installation documents are pre-defined which makes the entire building process faster and more reliable. User documents and descriptions are prepared to assist in user training. The application works as an individual, stand alone room control unit and can be installed, used alone, or combined with the entire network.

Future proof

The application is prepared and defined for integration into a Building Management System if required, through the open technology communication network.

EN 15232
A class solution

tested & validated

Technical specifications

Functions

functions

Application has two modes: automatic mode and manual mode

Automatic mode: The light is automatically switched ON when a person enters the room and the brightness value is below a predefined brightness threshold. It is automatically switched OFF when no movement is detected in the room and preset delay time has passed. The light can also be switched ON independent of brightness by pushing button no.1.

Delay is adjustable by ETS software. Default is 25 min.

The brightness threshold is also adjustable by ETS software. Our recommendation is 300 lux.

Manual mode: Push-button no.2 affects a permanent OFF. To turn the lights ON again, push-button no.1 has to be pressed. The automatic mode with movement detection will start again. After an automatic OFF the brightness dependent switch ON will start at movement again.

Components

The application consists of one movement detector (wall mounted), one push button (wall mounted) and one DIN-rail switch actuator (mounted in the cabinet or close to the room).

MTN647393	KNX Switch actuator REG-K/2x230/16 with manual mode

Design ranges

(Frames not included. Other designs and colours available.)

EXXACT

WDE002931	KNX Push-button, 1-gang

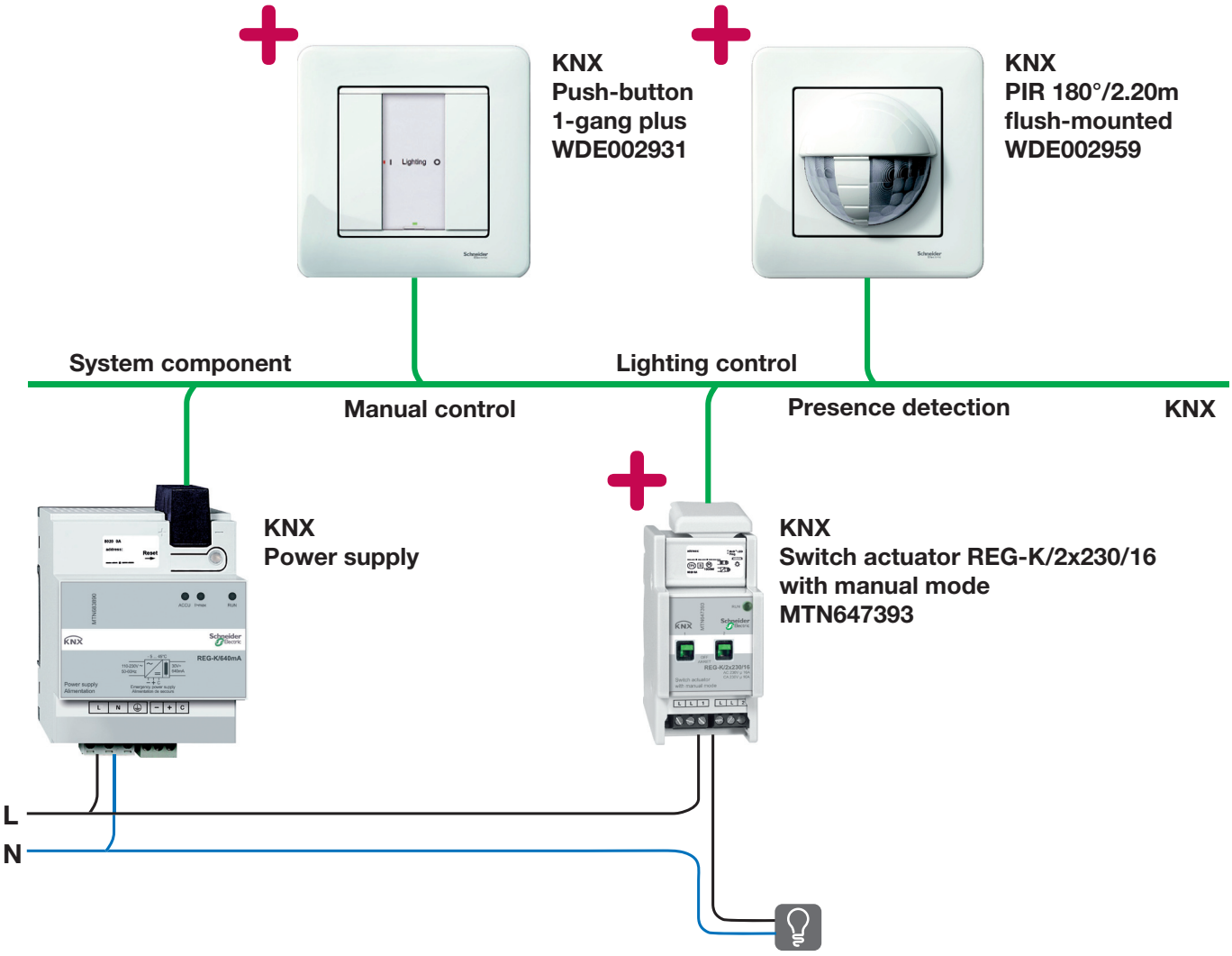
WDE002959	KNX PIR 180°/2.20m flush mounted

Installation

Movement detector recommended to be installed on the wall at a height of 2.20m.

Technical specifications

Wiring diagram



things work together

Technical specifications

Configuration

The ETS tool is used to set the parameters for the devices in the application and to define the functional relationship between the devices by group addresses.

The following parameters and group address relations must be set and assigned. The parameters should be set first and in the described order. The parameters which can be changed to fine tune the application are described further on.

settings

KNX PIR 180°/2.20m				
0	Switch object 1	Block 1	1 bit	–> 1/1/1
7	Trigger object	Block 1	1 bit	<– 1/1/3
8	Locking object	Block 1	1 bit	<– 1/1/4
109	Status feedback	Safety pause	1 bit	<– 1/1/2
Block 1 general				
Operation mode:		master mode		
Locking function:		enable		
Block 1 general –> Disable function				
Behaviour at start of block:		send telegram		
Block 1 general –> Brightness				
Brightness threshold (10-2000 Lux):		300		
Block 1 general –> Times				
Master triggering is (brightness-dep.):		disabled		
Time base for staircase timer:		1 min		
Time factor for staircase timer (1-255):		25		

Switch actuator REG-K/2x230/16				
1/1/1 –>	0	Switch object	Channel 1	1 bit
1/1/2 <–	3	Status feedback	Channel 1	1 bit
Device selection				
Device selection		2-fold switch actuator		
Channel 1: General				
Status information:		active status resp. object		
Relay state after bus voltage recovery:		opened		

KNX Push-button, 1-gang				
0	Switch object A	PB 1	1 bit	–> 1/1/4
1	Switch object B	PB 1	1 bit	–> 1/1/3
2	Status feedback obj.	PB 1	1 bit	<– 1/1/2
3	Switch object A	PB 2	1 bit	–> 1/1/4
Push-button 1				
Selection of function:		switch		
Number of objects:		two		
Triggering of status LED:		from status feedback object		
Object A Value:		OFF-telegram		
Object B Value:		ON-telegram		
Push-button 2				
Selection of function:		switch		
Number of objects:		one		
Triggering of status LED:		flashes when switch/value obj. A not equal to 0		

Group addresses

Address	Name (proposal)	Function
1/1/1	Room 001 Light On/Off	Light on/off by the movement detector
1/1/2	Room 001 Light Status	Feedback from actuator, On/Off
1/1/3	Room 001 Light Switch On	Brightness independent switch on from push-button
1/1/4	Room 001 Light Permanent OFF/Auto	Permanent OFF = 1, Automatic = 0

Technical specifications

Fine tuning

fine tuning

Some parameters can be changed to fine tune the solution to the building and specific requirements. Parameter which may need to be adjusted are listed below, our recommendation in brackets.

KNX PIR 180°/2.20m:
The staircase timer (delay time) will be retriggered by every detected movement when the light is on. The light will be switched off if no movement has been detected within the specified time.

Parameter page	Parameter	Value
Block 1 general –> Times	Time base for staircase timer	1s-1h (1 min)
Block 1 general –> Times	Time factor for staircase timer	1-255 (25)

Delay time = Time base x Time factor

The light will only be switched ON by movement if the brightness in the room is below the specified brightness threshold. Note that the brightness is measured at the installation place of the detector.

Parameter page	Parameter	Value
Block 1 general –> Brightness	Brightness threshold	10-2000 lux (300)

Power failure behaviour

Relay state after bus voltage failure: no change (relay remains)

Relay state after bus voltage recovery: opened (light is OFF)

Technical specifications

User manual

The user manual provided for the application is an end users training material and can be installed at site when final submission is made.

Please do no forget to cut out this quick guide for the user and attach to the wall next to the entrance to the room. Also, make sure the customer is aware of the installed applications function.

Quick guide

THIS ROOM IS EQUIPPED WITH AN AUTOMATIC MOVEMENT DETECTOR AND TWO PUSH-BUTTONS.

Automatic mode operation

- The light is automatically switched ON when a person enters the room and the brightness value is below a predefined brightness threshold. It is automatically switched OFF when no movement is detected in the room and preset delay time has passed. The light can also be switched ON independent of brightness by pushing button no. 1.

  LED 1 indicates the status of the light in the room.

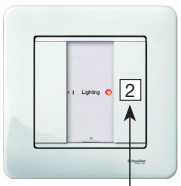
Manual mode

- Push-button no.2 affects a permanent OFF. To turn the lights ON again, push-button no.1 has to be pressed. The automatic mode with movement detection will start again. After an automatic OFF, the brightness dependent switch ON will start at movement again.

  LED 2 flashes when the manual mode is selected.

- Delay time is adjustable by KNX software.
  Default is 25 min.

- The brightness threshold is also adjustable by KNX software.
  Default is 300 lux.



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service for your customer